

Gracilacus elongata n. sp. (Nemata : Criconematoidea) parasitic on *Juncus ensifolius* Wikstr. from Mendocino, California

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SUMMARY

Gracilacus elongata n. sp. is described and illustrated from Mendocino County, California. It is characterized by its 105 μm long stylet, female with swollen body, excretory pore anterior to stylet knobs, distinct body annulation, thin cuticle, two lines in the lateral field and broad, rounded, conoid tail.

RÉSUMÉ

Gracilacus elongata n. sp. (Nemata : Criconematoidea) parasite de *Juncus ensifolius* Wikstr.
à Mendocino, Californie

Gracilacus elongata n. sp., provenant du Comté de Mendocino (Californie), est décrit et figuré. Il est caractérisé par le stylet long de 105 μm , le corps renflé des femelles, la cuticule fine comportant une annélation cuticulaire distincte, le champ latéral à deux lignes et la queue trapue, arrondie - conoïde.

In our studies of (Mendocino Geological Terraces) in Mendocino County, California, one soil sample from *Juncus ensifolius* Wikstr. collected in 1979 from Terrace 3 (300 thousand years old), contained two females, one male, and one second-stage juvenile of undescribed species of *Gracilacus* Raski, 1962. The spodosol soil sample was dry, whitish gray, with a pH of 3.8. This *Gracilacus* species was different from other species in the genus, therefore, it is described herein as new to the science.

Materials and methods

Dry, whitish gray, spodosol soil sample and roots were collected from Mendocino County, California. Soil was moistened by water drops; nemas were extracted from soil by screening, followed by Baermann funnel and sugar flotation centrifugation techniques (Jenkins, 1964). Nemas in a small volume of water were killed by adding an equal volume of boiling 10 % formaldehyde solution, and left at least for 48 h, then stored in 2.5 % formaldehyde.

Roots, without any visible symptoms of nematode infection, were incubated in a mist chamber for one week, no nemas were recovered; no root dissection was attempted at that time, and no roots were preserved for that specific sample. Nematode specimens which are available for this study were obtained only from the mass collection that came from soil screenings, followed by

sugar flotation centrifugation. Nemas were fixed in FAA and processed for permanent mounts using the slow method (Thorne, 1961), and mounted in glycerin.

Gracilacus elongata n. sp. (Fig. 1)

MEASUREMENTS

Female (n = 2) : L = 321 μm (313-328); a = 15.3 (14.9-15.7); b = 2.1 (2-2.2); c = 23.8 (24.1-23.4); V = 81.5 (81-82); stylet 105 μm ; stylet shaft with knobs 10.65 μm (10-11.3); body width 21 μm (20-22); from anterior extremity to excretory pore 83 μm (78-88); esophagus 154 μm (152-156); from anterior extremity to vulva 262 μm (257-266); from vulva to body end 59 μm (56-62); tail 13.5 μm (13-14).

Holotype (female) : L = 328 μm ; a = 14.4; b = 2.15; c = 23.4; V = 81; stylet 105 μm ; stylet shaft with knobs 10 μm ; body width 22 μm ; from anterior extremity to excretory pore 88 μm ; from excretory pore to stylet knobs base 22 μm ; metacarpus length 22 μm ; metacarpus width 12 μm , metacarpus valve length 9 μm , metacarpus valve width 4 μm ; esophagus 152 μm ; anterior extremity to vulva 266 μm ; vulva to body end 62 μm ; tail 14 μm .

Allotype (male) : L = 376 μm ; a = 5.1; b = 41.8; c = 14.5; body width 9 μm ; from anterior extremity to

excretory pore 72 μm ; esophagus 74 μm ; testis 137 μm ; tail 26 μm ; spicules 20 μm ; gubernaculum 4 μm .

Juvenile, 2nd-stage ($n = 1$) : $L = 240 \mu\text{m}$; $a = 20$; $b = 2.9$; $c = ?$; stylet 44 μm ; from anterior end to excretory pore 61 μm ; esophagus 84 μm ; body width 12 μm .

DESCRIPTION

Female : Body swollen, curved and assumes modified "C" shape when relaxed, anterior cephalic region narrower than the rest of the body, body narrows posterior to vulva. In lateral view, submedian lobes easily seen, no sclerotization visible in cephalic region, cuticle thin about one micrometer in thickness, body annulation fine but distinct, and coarse in the anterior and posterior body regions. Stylet long 105 μm ; knobs rounded and sloping backward, their height 2.1 μm (1.92-2.3), width 5 μm (4.6-5.4); metacarpus oval and wide, its length 22 μm ; width 13.5 μm (12-15); with large valve 9.4 μm (8.5-10.5) long and 4.4 μm (3.8-5) wide; isthmus short and slender 8.3 μm (7-10) long; nerve ring encircles three-fourths of the isthmus. Basal bulb oblong 14 μm long, esophago-intestinal valve small but conspicuous, lobe-shaped. Excretory pore anterior to stylet knobs. Hemizonid inconspicuous, about two body annuli long, adjacent to excretory pore. Vulva at 81-82 % of body length, vulval lips hemispherical, and protruding, vulval cuticular membrane present, uterus wide with thick-celled wall, spermatheca oval, filled with sperm, 18 μm (17-19) long and 13 μm (12-14) wide; gonad single, outstretched, reaches the esophago-intestinal valve. Body reaches its maximum width anterior to vulva (21-24 μm), body width at vulval level (18-23 μm); a post-vulval cellular extension present, its length a little less than three-fourths body width at vulval level and closely appressed to vagina. Lateral field marked with two narrow lines, body narrows and curves posterior to vulva, tail conoid, and broadly rounded, anus obscure, anal body width 8.8 μm (8-9.6), phasmids 6 μm from tail tip.

Male : Body slender, filiform, tapering slightly anteriorly and posteriorly, cephalic region not set-off from body, smooth without annulation, no sclerotization in cephalic region, width 5 μm ; stylet absent, esophagus undeveloped, procorpus and metacarpus inconspicuous, basal bulb elongate, slightly overlaps intestine, excretory pore slightly anterior to junction between esophagus and intestine, hemizonid immediately posterior to excretory pore about 2 or 3 body annuli long (excretory pore appears to pass through the anterior region of hemizonid); body annulation fine in the anterior and posterior parts of the body, coarse from just anterior to excretory pore to cloaca level. Lateral field with two lines. Testis 137 μm long, 36.4 % of the body length, spicules slender, curved, gubernaculum curved.

Tail conoid, broadly rounded and slightly curved, bursa absent, anal body width 8 μm . There is a pronounced sexual dimorphism in the male and female.

Juvenile, 2nd-stage : body slender, tapering slightly anteriorly and posteriorly; cephalic region bluntly rounded anteriorly without visible annulation, and without sclerotization, stylet well developed, with prominent knobs sloping posteriorly, body annulation fine, metacarpus and metacarpus valve weakly developed, isthmus long, slender ends with prominent basal bulb. Excretory pore opposite to nerve ring, anus obscure, tail conoid rounded.

TYPE SPECIMENS

Holotype (female) and *Allotype* (male) : Collected 29 August 1979 by E. Mae Noffsinger, Catalogue No. UCNC 2372 and UCNC 2373 (University of California Davis Nematode Collection).

Paratype : One female, same data as holotype (on the same slide with the holotype — the holotype is the upper female).

Type host : *Juncus ensifolius* Wikstr.

Type locality : Mendocino Geological Staircase, Terrace 3, Mendocino Country, California, USA.

DIAGNOSIS

Gracilacus elongata n. sp. differs from all other species in the genus having two lines in the lateral field and a stylet longer than 100 μm . Only *G. elegans* (Raski, 1962) is known to have two lines in the lateral field and a long stylet (100-119 μm). *G. elongata* n. sp. can be distinguished from the later by having smaller stylet 105 vs 114 μm (110-119); smaller "a" value : 15.3 (14.9-15.6) vs 24 (21.1-28.0); greater "c" value : 23.8 (23.4-24.1) vs 9.8 (8.6-13.2); vulva located further posterior : $V = 81.5$ (81-82) vs 72 (70-74), excretory pore anterior to the stylet knobs, 22 μm ahead of stylet knobs, rather than being at the same level of stylet knobs in *G. elegans*. Body annulation distinct vs inconspicuous in *G. elegans*, tail conoid and broadly rounded rather than pointed in *G. elegans*, shorter body posterior to vulva ($V = 81.5$) in *G. elongata* n. sp. vs long slender body posterior to vulva ($V = 72$) in *G. elegans*.

G. elongata n. sp., in having long stylet, resembles also *G. epacris* (Allen & Jensen, 1950) Raski, 1962, and *G. enata* (Raski, 1976). However, *G. elongata* n. sp. can be further separated from *G. epacris* by having longer stylet, larger "a" and "c" value, $V = 81.5$ vs (85-87) in *G. epacris*, and the anterior placement of the excretory pore.

G. elongata n. sp. can be also further distinguished from *G. enata* by having a smaller "a" value, and larger "c", $V = 81.5$ (81-82) vs. 78 (74-80) in *G. enata*, and short broad rounded tail vs long pointed tail in *G. enata*.

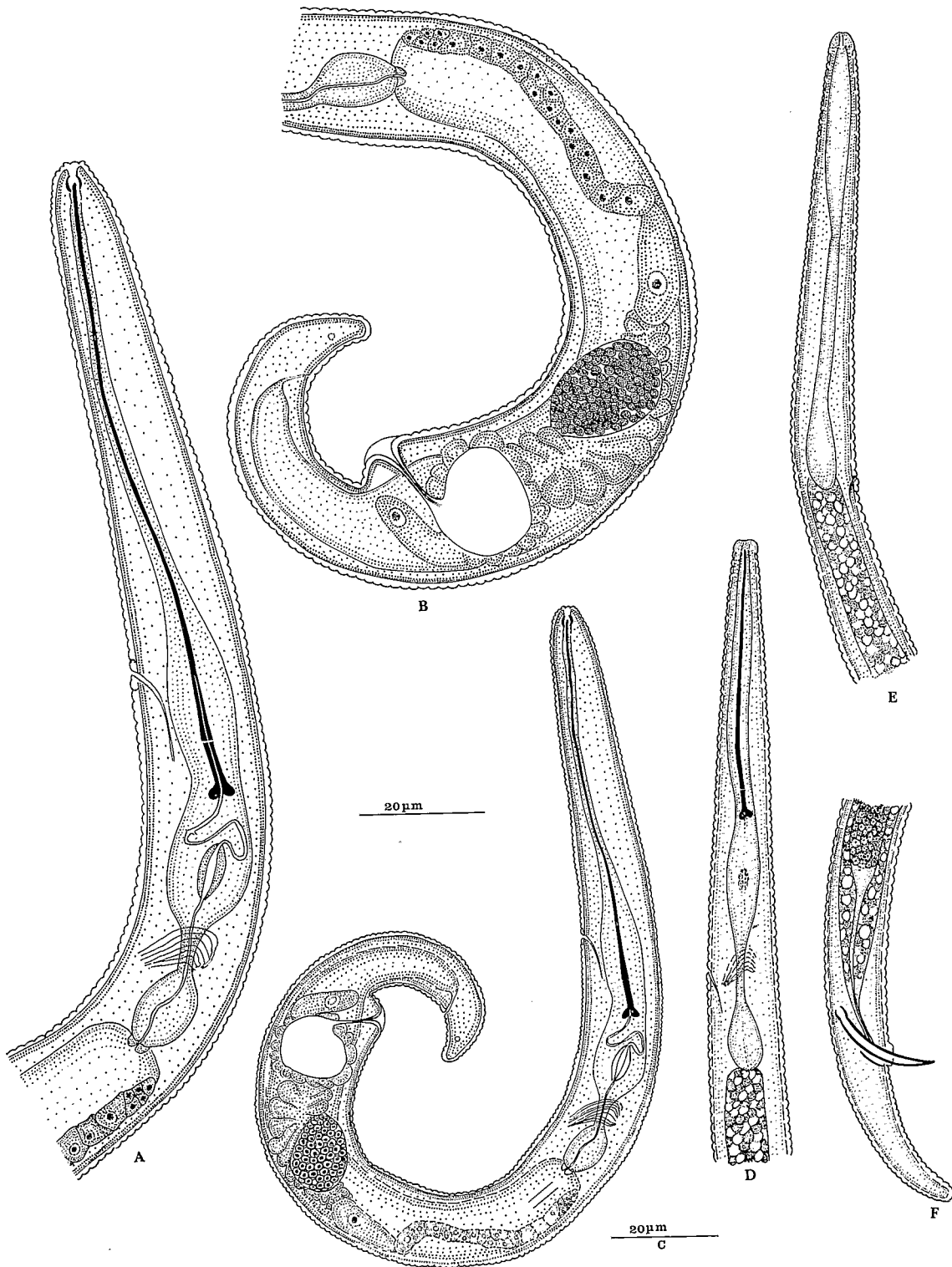


Fig. 1 : (A-F) *Gracilacus elongata* n. sp. A-C : Female; A : Anterior body region; B : Posterior body region; C : Whole adult female; D : Juvenile, anterior body region; E-F : Male; E : Anterior body region; F : Posterior body region.

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